

Translation

PATENT COOPERATION TREATY

PCT/EP2003/009280



PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference A400961WO	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/EP2003/009280	International filing date (day/month/year) 21 August 2003 (21.08.2003)	Priority date (day/month/year) 29 November 2002 (29.11.2002)
International Patent Classification (IPC) or national classification and IPC C23G 3/02		
Applicant VOEST-ALPINE INDUSTRIEANLAGENBAU GMBH & CO		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 10 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☒ (sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:

☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒ Box No. I Basis of the report

☐ Box No. II Priority

☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

☐ Box No. IV Lack of unity of invention

☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

☐ Box No. VI Certain documents cited

☐ Box No. VII Certain defects in the international application

☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 25 June 2004 (25.06.2004)	Date of completion of this report 16 February 2005 (16.02.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2003/009280

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ The international application as originally filed/furnished

☒ the description:

pages _____ 1-7 _____, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

pages _____, as originally filed/furnished

pages* _____, as amended (together with any statement) under Article 19

pages* 1-18 received by this Authority on 22 December 2004 (22.12.2004)

pages* _____ received by this Authority on _____

☒ the drawings:

pages _____ 1-4 _____, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP 03/09280

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-16	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-16	NO
Industrial applicability (IA)	Claims	1-16	YES
	Claims		NO

2. Citations and explanations

This report refers to the following documents:

- D1: US-A-5 932 025 (SYLVAIN DANIEL) 3 August 1999
(1999-08-03)
- D2: EP-A-1 035 233 (ANDRITZ PATENTVERWALTUNG) 13
September 2000 (2000-09-13)
- D3: EP-A-0747 508 (GEWERK KERAMCHEMIE) 11 December
1996 (1996-12-11)
- D4: DE 100 32 717 A (SMS DEMAG AG) 17 January 2002
(2002-01-17)
- D5: US-A-5 579 788 (AMMERMAN WALTER DR ET AL.) 3
December 1996 (1996-12-03).

2.1 The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claims 1-15 and 16 does not involve an inventive step within the meaning of PCT Article 33(3).

2.2 Document D1 is considered to be the prior art closest to the subject matter of claims 1-15 and 16. It discloses (the references in parentheses relate to this document) a device for continuous treatment

of metal strip by means of a treatment liquid, the metal strip being run horizontally through at least one tank (4) to pick up the treatment liquid. The device further comprises a recirculation tank (1) situated directly beneath the tank for preparing, maintaining and storing the treatment liquid (cf. column 2, lines 6-32, column 3, lines 16-26 and 53-54, claims 1 and 2, figures 2 and 3).

2.3 The subject matter of claim 1 differs, then, from the known document D1 in that the recirculation pump has a bottom with an incline extending over its entire span, the incline being oriented in and/or transverse to the strip's direction of travel.

2.3.1 The problem to be solved with the present invention can thus be seen as that of being able more rapidly to evacuate the recirculation pump completely.

2.3.2 The solution to this problem as proposed in claim 1 of the present application cannot be considered inventive (PCT Article 33(3)) for the following reasons:

2.3.3 The feature that the recirculation pump has a bottom with an incline extending over its entire span, the incline being oriented in and/or transverse to the strip's direction of travel represents merely one of a number of obvious possibilities from which a person skilled in the art would choose, according to the circumstances in order to solve the problem of interest, without thereby being inventive. Confronted with this problem, a person skilled in the art would seek the relevant prior art and consequently find documents D3 and D4, the bottom

surfaces of the container being inclined in the direction of drainage (cf. D3, column 4, lines 30-31) or transversely (cf. D4, column 3, lines 12-19). It seems logical for a person skilled in the art desirous of completely evacuating the recirculation tank more rapidly that these features should be applied to the device disclosed in document D1. In this way, without inventive input, the skilled person would arrive at a device according to claim 1.

The subject matter of claim 1 therefore does not involve an inventive step in relation to document D1 (PCT Article 33(3)).

2.4 D1 likewise discloses a method for restructuring a treatment device, the deep tank being removed and in its place a shallow tank and a recirculation pump installed, also with the recirculation pump being situated directly beneath the shallow tank (cf. column 1, lines 62-66, column 2, lines 1-15, claims 1-3).

2.5 The subject matter of claim 16 differs, then, from the known document D1 in that the recirculation pump has a bottom with an incline extending over its entire span, the incline being oriented in and/or transverse to the strip's direction of travel.

2.5.1 Claim 16 of the present application cannot be considered inventive for the same reasons given in point 2.3.3 (PCT Article 33(3)).

2.6. Dependent claims 2-15 do not contain any features which in combination with the features of any claim

to which they refer back meet the PCT requirements for inventive step - see documents D1, D2, D3, D4 and D5 and the corresponding passages in the search report. The reasons therefor are as follows:

- 2.6.1 The essential features of claims 2 and 3, that the tank (1) is designed as a shallow tank with at least one cover, have already been disclosed in D1 (cf. column 3, lines 27-31, column 4, lines 49-50).
- 2.6.2 The essential features of claims 4 and 5, that structurally the tank (1) is placed atop at least one recirculation tank (3), and accordingly the tank (1) and the recirculation pump (3) form one unit, have already been disclosed in D1 (cf. column 3, lines 16-20, 53-54).
- 2.6.3 The essential feature of claim 6, that the tank (1) and the at least one recirculation tank (3) are sealed, have already been disclosed in D1 (cf. fig. 3, column 3, lines 11-15).
- 2.6.4 The essential feature of claim 7, that the bottom (9) of the tank (1) forms the cover for the at least one recirculation pump (3), has already been disclosed in D1 (cf. fig. 3).
- 2.6.5 The choice of the plastics material, preferably polypropylene, for the tank (1) and the recirculation tank (3) is, considering the desired effect, namely better resistance to corrosive attack by the treatment liquid or corrosive liquid, sufficiently well known and does not involve an inventive step (see document D2, column 1, lines 47-54, claim 4, as well as document D3, column 5, lines

8-15, claim 12).

The subject matter of claim 8 therefore does not involve an inventive step (PCT Article 33(3)).

2.6.6 The essential feature of claim 9, that the tank (1) and the at least one recirculation tank (3) are made of rubber-coated steel, has already been disclosed in D1 (cf. column 3, lines 11-15, 35-38).

2.6.7 The subject matter of claim 10 of the present application (the references in parentheses relate to this application) differ, then, from the known material in that the tank (1) is connected to the recirculation tank (3) by way of drainage chambers (4) and/or through a drain (6) encompassing a change in length.

The problem to be solved with the present application can thus be seen as providing that the tank is evacuated in a simple manner by way of this drain and that the drainage chambers accommodate the treatment liquid issuing from the tank and direct it into the recirculation tank (see page 4, second paragraph).

The solution proposed in claim 10 of the present application cannot be considered inventive (PCT Article 33(3)) for the following reasons:

2.6.7.1

Document D2 (the references in parentheses relate to this document) also discloses a device for the continuous treatment of strip steel, in particular

for pickling, with a treatment container or tank (1), squeeze rollers being provided at the ends of the tank and disposed in a container or drainage chamber (13) (cf. column 1, lines 19-30, claim 1) and discloses that the tank (1) and the drainage chambers (13) are connected with a connecting shaft (15) or telescopic shaft (17) to effect an extension compensation (cf. column 1, lines 31-34, claims 2, 6 and 7, figures 1 and 2). Furthermore, D2 discloses that a drain (8, 9) is provided at at least one end of the tank (1) (cf. column 1, lines 40-46, claim 3, figures 1 and 2).

The subject matter of claim 10 therefore does not involve an inventive step in relation to document D2 (PCT Article 33(3)).

2.6.7.2 Document D3, the EP document equivalent to US 5566694, which is cited in D2, also discloses (the references in parentheses relate to this document) a device for continuous treatment of strip steel, in particular for pickling, with a pickling container or trough (20) made of plastic, to which are joined at both ends chambers or drainage chambers (12, 14) that have an inlet and an outlet for the metal strip as well as a drain for the pickling liquid and are likewise made of plastic (cf. column 1, lines 1-10, claims 1 and 2, figures 1, 2 and 4). D3 further discloses that a thermal expansion of the trough (20) is made possible and that the trough (20) is designed with expandable lines (cf. column 2, lines 3-22, claims 2-12).

The subject matter of claim 10 therefore does not involve an inventive step in relation to document D3

(PCT Article 33(3)).

2.6.8 The invention according to claim 11, that the drain (6) is situated, in the strip direction of travel, at the center of the tank (1), has already been described in document D4 (see D4, column 4, lines 8-14, claim 10, figure 5).

The subject matter of claim 11 therefore does not involve an inventive step (PCT Article 33(3)).

2.6.9 The invention according to claim 12, that the tank (1) has a bottom downwardly inclined toward the drain, has already been described in documents D4 and D5 (see D4, figure 5 and D5, column 3, lines 43-44, figure 3).

The subject matter of claim 12 therefore does not involve an inventive step (PCT Article 33(3)).

2.6.10 Dependent claim 13 of the present application pertains to a minor structural modification of the pickling device according to document D3 (see D3, column 3, lines 44-58, column 4, line 1 to column 5, line 7, figures 1 and 4, claims 3, 4, 5 and 8) as well as document D5 (see D5, column 2, lines 55-67, column 3, lines 1-30, figures 1, 2 and 3, claims 1, 5, 6, 12) which falls within the scope of what a person skilled in the art routinely does on the basis of familiar considerations, especially as the advantages achieved thereby are readily apparent.

Consequently, the subject matter of claim 13 does not involve an inventive step.

2.6.11 A person skilled in the art, however, is generally aware that the feature that at least one connection line (14) for aerating and/or de-aerating the recirculation tank (3) is disposed between recirculation tank (3) and tank (1) is equivalent to and can, if necessary, replace the feature from document D5 (cf. column 3, lines 16-21) that a de-aerating of the treatment liquid from the interior of a container can be done through a closable flow control valve.

2.6.12 The essential feature indicated in claim 15, that the treatment liquid is delivered into the tank (1) by at least one recirculation tank (3) by means of pumps, has already been disclosed in D1 (cf. column 3, lines 63-67, column 4, lines 1-20, claims 2, 5 and 6).

3 INDUSTRIAL APPLICABILITY

3.1 The subject matter of claims 1-16 meets the requirements of PCT Article 33(4).

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